

**WHAT IS CLAIMED IS:**

1           1.     A system for analog-to-digital signal conversion, the system comprising:  
2                     logic configured to associate a first request with a plurality of input terminals and  
3     a second request with one of the input terminals;  
4                     a converter configured to convert an analog signal presented at each of a portion  
5     of the input terminals associated with the first request in succession into a digital value until the  
6     one of the input terminals associated with the second request is reached; and  
7                     logic configured to wait a predetermined amount of time to receive the second  
8     request;  
9                     wherein the converter is configured to convert an analog signal presented at each  
10    of a remaining portion of the input terminals associated with the first request in succession into a  
11    digital value when one of an expiration of the predetermined amount of time and a receiving of  
12    the second request occurs.

1           2.     The system of claim 1, wherein when the receiving of the second request occurs  
2     before the expiration of the predetermined amount of time, the system comprises:  
3                     logic configured to acknowledge a completion of the second request when the  
4     converting of the analog signal presented at each of the input terminals associated with the first  
5     request is complete.

1           3.     The system of claim 1, wherein when the receiving of the second request occurs  
2     after the expiration of the predetermined of amount of time, the system comprises:

3 logic configured to deny the second request when received before completing the  
4 converting of the analog signal presented at each of the input terminals associated with the first  
5 request.

1 4. The system of claim 1, wherein when a third request associated with a plurality of  
2 input terminals is received while converting the analog signal presented at each of the remaining  
3 portion of the input terminals associated with the first request, the system comprises:

4 logic configured to determine a priority between the converting of the analog  
5 signal presented at each of the remaining portion of the input terminals associated with the first  
6 request and the third request.

1 5. The system of claim 4, wherein when the converting of the analog signal  
2 presented at each of the remaining portion of the input terminals associated with the first request  
3 has the priority, the system comprises:

4 logic configured to deny the third request.

1 6. The system of claim 4, wherein when the third request has the priority, the system  
2 comprises:

3 logic configured to halt the converting of the analog signal presented at each of  
4 the remaining portion of the input terminals associated with the first request, wherein the  
5 converter is configured to convert an analog signal presented at each of a portion of the input  
6 terminals associated with the third request in succession into a digital value until the one of the  
7 input terminals associated with the second request is reached; and

8 logic configured to wait a second predetermined amount of time to receive a  
9 fourth request associated one of the input terminals associated with the third request, wherein the  
10 converter is configured to convert an analog signal presented at each of a remaining portion of  
11 the input terminals associated with the third request in succession into a digital value when one  
12 of an expiration of the second predetermined amount of time and a receiving of the fourth  
13 request occurs.

1 7. The system of claim 1, wherein the converter is configured to receive the first and  
2 second requests on respective signal lines.

1 8. The system of claim 1, wherein the plurality of the input terminals associated with  
2 the first request is changeable prior to an occurrence of the first request, and the one of the input  
3 terminals associated with the second request is one of changeable and fixed prior to an  
4 occurrence of the second request.

1 9. A method for analog-to-digital signal conversion, the method comprising:  
2 associating a first request with a plurality of input terminals and a second request  
3 with one of the input terminals;  
4 converting an analog signal presented at each of a portion of the input terminals  
5 associated with the first request in succession into a digital value until the one of the input  
6 terminals associated with the second request is reached;  
7 waiting a predetermined amount of time to receive the second request; and

8           converting an analog signal presented at each of a remaining portion of the input  
9   terminals associated with the first request in succession into a digital value when one of an  
10   expiration of the predetermined amount of time and a receiving of the second request occurs.

1           10.    The method of claim 9, wherein when the receiving of the second request occurs  
2   before the expiration of the predetermined amount of time, the method comprises:  
3           acknowledging a completion of the second request when the converting of the  
4   analog signal presented at each of the input terminals associated with the first request is  
5   complete.

1           11.    The method of claim 9, wherein when the receiving of the second request occurs  
2   after the expiration of the predetermined of amount of time, the method comprises:  
3           denying the second request when received before completing the converting of  
4   the analog signal presented at each of the input terminals associated with the first request.

1           12.    The method of claim 9, wherein when a third request associated with a plurality  
2   of input terminals is received while converting the analog signal presented at each of the  
3   remaining portion of the input terminals associated with the first request, the method comprises:  
4           determining a priority between the converting of the analog signal presented at  
5   each of the remaining portion of the input terminals associated with the first request and the third  
6   request.

1           13.     The method of claim 12, wherein when the converting of the analog signal  
2     presented at each of the remaining portion of the input terminals associated with the first request  
3     has the priority, the method comprises:  
4                 denying the third request.

1           14.     The method of claim 12, wherein when the third request has the priority, the  
2     method comprises:  
3                 halting the converting of the analog signal presented at each of the remaining  
4     portion of the input terminals associated with the first request;  
5                 converting an analog signal presented at each of a portion of the input terminals  
6     associated with the third request in succession into a digital value until the one of the input  
7     terminals associated with the second request is reached;  
8                 waiting a second predetermined amount of time to receive a fourth request  
9     associated one of the input terminals associated with the third request; and  
10                converting an analog signal presented at each of a remaining portion of the input  
11    terminals associated with the third request in succession into a digital value when one of an  
12    expiration of the second predetermined amount of time and a receiving of the fourth request  
13    occurs.

1           15.     The method of claim 9, wherein the plurality of the input terminals associated  
2     with the first request is changeable prior to an occurrence of the first request, and the one of the  
3     input terminals associated with the second request is one of changeable and fixed prior to an  
4     occurrence of the second request.

1           16.     A computer readable medium containing a computer program for analog-to-  
2     digital signal conversion, wherein the computer program comprises executable instructions for:  
3                 associating a first request with a plurality of input terminals and a second request  
4     with one of the input terminals;  
5                 converting an analog signal presented at each of a portion of the input terminals  
6     associated with the first request in succession into a digital value until the one of the input  
7     terminals associated with the second request is reached;  
8                 waiting a predetermined amount of time to receive the second request; and  
9                 converting an analog signal presented at each of a remaining portion of the input  
10    terminals associated with the first request in succession into a digital value when one of an  
11    expiration of the predetermined amount of time and a receiving of the second request occurs.

1           17.     The computer readable medium of claim 16, wherein when the receiving of the  
2     second request occurs before the expiration of the predetermined amount of time, the computer  
3     program comprises executable instructions for:  
4                 acknowledging a completion of the second request when the converting of the  
5     analog signal presented at each of the input terminals associated with the first request is  
6     complete.

1           18.     The computer readable medium of claim 16, wherein when the receiving of the  
2     second request occurs after the expiration of the predetermined of amount of time, the computer  
3     program comprises executable instructions for:  
4                 denying the second request when received before completing the converting of  
5     the analog signal presented at each of the input terminals associated with the first request.

1           19.     The computer readable medium of claim 16, wherein when a third request  
2     associated with a plurality of input terminals is received while converting the analog signal  
3     presented at each of the remaining portion of the input terminals associated with the first request,  
4     the computer program comprises executable instructions for:  
5                 determining a priority between the converting of the analog signal presented at  
6     each of the remaining portion of the input terminals associated with the first request and the third  
7     request.

1           20.     The computer readable medium of claim 19, wherein when the converting of the  
2     analog signal presented at each of the remaining portion of the input terminals associated with  
3     the first request has the priority, the computer program comprises executable instructions for:  
4                 denying the third request.

1           21.     The computer readable medium of claim 16, wherein when the third request has  
2     the priority, the computer program comprises executable instructions for:  
3                 halting the converting of the analog signal presented at each of the remaining  
4     portion of the input terminals associated with the first request;  
5                 converting an analog signal presented at each of a portion of the input terminals  
6     associated with the third request in succession into a digital value until the one of the input  
7     terminals associated with the second request is reached;  
8                 waiting a second predetermined amount of time to receive a fourth request  
9     associated one of the input terminals associated with the third request; and

10                    converting an analog signal presented at each of a remaining portion of the input  
11   terminals associated with the third request in succession into a digital value when one of an  
12   expiration of the second predetermined amount of time and a receiving of the fourth request  
13   occurs.